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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Patent No. 6,805,764 B2) Serial No. 09/864,779
Inventor(s): J. Steve TAYLOR *et al*) Filed: 09/864,779
Issue Date: October 19, 2004) Attorney Docket No. 006401.00018

For: METHOD FOR ADHESIVELY BONDING LAMINATES AND COMPOSITE STRUCTURES

REQUEST FOR CERTIFICATE OF CORRECTION

U.S. Patent and Trademark Office
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Alexandria, VA 22314

Certificate
OCT 12 2005
of Correction

Sir:

Pursuant to 35 U.S.C. § 254 and 37 C.F.R. § 1.322, this is a request for the issuance of a Certificate of Correction in the above-identified patent. Two (2) copies of PTO Form 1050 are appended. The complete Certificate of Correction involves one page.

Particular attention is called to the error in Column 3, Lines 52-53 of the Specification. Applicants inadvertently omitted a portion of a sentence in the Response to Final Office Action filed on March 10, 2004 and respectfully request that the omitted portion be reinserted. No new matter is believed to be introduced with this correction. Enclosed for your convenience are the relevant portions of the Response to Final Office Action, filed March 10, 2004, as well as the relevant portions of the Specification as filed May 24, 2001, showing the paragraph as it originally appeared.

Issuance of the Certificate of Correction containing the corrections is respectfully requested. Please charge the requisite fee of \$100.00, and any additional fee, which may be associated to our Deposit Account No. 19-0733.

Respectfully submitted,

BANNER & WITCOFF, LTD.

10/07/2005 SZEWDIE1 00000149 190733 6805764
01 FC:1811 100.00 DA

Dated: 10/4/05

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OCT 13 2005

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO.: 6,805,764 *B2*
DATED: October 19, 2004
INVENTOR(S): J. Steve TAYLOR *et al*

It is certified that errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Column 3, Lines 52-53:

Please replace "The remainder of the bonding agents, if any, in the adhesive composition may be starch-based." with --The remainder of the bonding agents, if any, in the adhesive composition may be starch-based bonding agents, synthetic bonding agents, or other bonding agents as may be known or found suitable for use.--

In Column 11, Claim 1, Line 3:

Please replace "composition" with --composition,--

In Column 12, Claim 30, Line 59:

Please replace "stops" with --steps--

In Column 12, Claim 31, Line 64:

Please replace "precut" with --present-- and "weighs" with --weight--

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FORM PTO 1050 (Rev.2-93)

U.S. PAT. NO 6,805,764

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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

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DATED: October 19, 2004
INVENTOR(S): J. Steve TAYLOR *et al*

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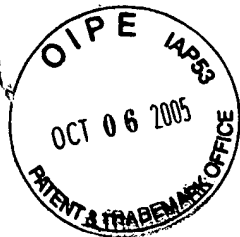
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Mailed May 24, 2001 via Express Mail EL643543062US
209187- Grain AEH/srs

In re Application of Taylor et al, Filed May 24, 2001
For: ADHESIVELY BONDED LAMINATES AND COMPOSITE STRUCTURES
U.S. Patent Application No. Unassigned

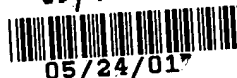
Enclosed: Utility Patent Application Transmittal (2 pages in duplicate); Application Data Sheet (2 pages); Specification (19 pages); Claims (7 pages); Abstract (1 page); Drawings (1 sheet); and a check in the amount of \$1,230.00 for the Application Fee; and this return postcard. **RECEIVED**

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JC973 U.S. PTO

09/864779



milling industry; or from spent germ from the corn dry milling industry. All of these products are byproducts, either from the isolation of corn starch, corn protein and corn oil in the case of the corn wet milling industry, or from the isolation of corn flour and corn oil in the case of the corn dry milling industry. These byproducts are of little economic value *per se*, being marketed mainly as excipients within animal feeds. American agriculture and the corn wet milling industry and the corn dry milling industry together provide a reliable, low cost, and consistent source of hulls, bran, and spent germ through their mass production of corn and the conversion of corn into the products starch, corn flour, protein, and oil, and the byproducts, hulls, bran, and spent germ. Because of the high hemicellulose content and ready availability of corn hulls, corn hulls are the preferred hemicellulose source. An example of an accepted composition of commercially produced corn hulls or corn bran is as follows: hemicellulose-56.38%, cellulose-18.79%, starch-8.14%, protein-7.90%, fat-1.69%, acetic acid-3.51%, ferulic acid-2.67%, diferulic acid-0.58%, coumaric acid-0.33%, and trace amounts of other materials such as phytosterols and minerals. The materials are chemically and physically bound together in the corn hulls. Other suitable sources for hemicellulose include other seed sources, such as wheat, oats, and soybeans.

The hemicellulose may be present in the adhesive composition in any amount effective to provide bonding in connection with the intended use of the adhesive. The hemicellulose may be the sole or primary bonding agent in the adhesive composition, but it is contemplated that other bonding agents further may be present. Preferably, the hemicellulose is present in an amount of at least 10% by dry weight of the bonding agent in the adhesive composition. Most preferably, the hemicellulose is present in an amount of at least 45% by dry weight of the bonding agent in the adhesive composition. In some embodiments, the hemicellulose constitutes essentially 100% of the bonding agent. The remainder of the bonding agents, if any, in the adhesive composition may be starch-based,

bonding agents, synthetic bonding agents, or other bonding agents as may be known or found suitable for use.

Generally, the adhesive may be used to bond two substrates together, one or both of which substrates may be a liquid pregnable material. The adhesive further may be used to impregnate a single laminae or ply of a liquid pregnable material. The impregnated material thus prepared may be dewatered for use in applications such as shipping partitions, or may be used as a pre-impregnated laminae or "prepreg" in further processing. When the adhesive is used to bond two substrates to one another, the substrates may be glass, metal, fibrous material, paper, fabrics, cardboard, wood, or, more generally, any materials susceptible to bonding. Each substrate may or may not be of a like material.

The manner of applying the adhesive may be conventional, and, for instance, may be accomplished by contacting a surface of one or both substrates with an effective amount of the adhesive to accomplish bonding of the two substrates. Preferably, the substrate is immersed in a bath of the adhesive composition. Subsequently, the first and second substrate are placed into contact at least along the coated surface, thereby forming a bonding interface. By "in contact" is contemplated not only direct contact of the substrates but also contact via an intermediate adhesive connection. After the substrates have been placed into contact, the adhesive composition then is at least substantially dewatered, by which is contemplated removing sufficient water to effectuate an adhesive bond between the substrates. The substrates may be dewatered by applying heat. It is contemplated that not all of the water found in the adhesive composition may need to be removed in order to create a bond between the substrates.

The adhesive composition can be used to prepare a composite structure by impregnating a liquid pregnable material with the adhesive composition. By "liquid pregnable" is contemplated a material that is pregnable with the liquid adhesive beyond the



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TO: Patent and Trademark Office
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FROM: Rebecca P. Rokos
Registration No. 42,109

COMPANY: USPTO

DATE: March 10, 2004

FAX NO.: (703) 872-9306

TOTAL NO. OF PAGES: 15

OUR REFERENCE NO.: 006401.00018

RE: In re Appln. of Steve J. Taylor et al.
Appln. No. 09/864,779
Filed May 24, 2001
For: ADHESIVELY BONDED LAMINATES AND COMPOSITE STRUCTURES

OFFICIAL FAX

If you do not receive all page(s) or have any problems receiving this transmission, please call:

NAME: Christine Parker

PHONE: 312-463-5532



PTO/SB/97 (08-00)

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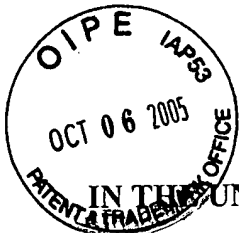
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of) ADHESIVELY BONDED
) LAMINATES AND COMPOSITE
Steve J. Taylor et al.) STRUCTURES
)
Serial No.: 09/864,779) Attorney Docket: 006401.00018
Filed: May 24, 2001)
) Group Art Unit: 2818
)
) Examiner: Jessica Rossi
)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
Mail Stop: RCE

RESPONSE TO FINAL OFFICE ACTION

In response to the Office Action of December 10, 2003, reconsideration is respectfully requested in light of the present amendments and remarks.

Amendments to the specification begin on the next page.

Amendments to the claims are set forth in the listing of claims. These begin on the first page following the amendments to the specification.

Remarks begin on the first page following the claim amendments and listing of claims.

Amendments to the Specification

Please substitute the following paragraph at page 5 with the following replacement paragraph:

The hemicellulose may be present in the adhesive composition in any amount effective to provide bonding in connection with the intended use of the adhesive. The hemicellulose may be the sole or primary bonding agent in the adhesive composition, but it is contemplated that other bonding agents further may be present. Preferably, the hemicellulose is present in an amount of at least 10% by dry weight of the bonding agent in the adhesive composition. Most preferably, the hemicellulose is present in an amount of at least 45% or at least 50% by dry weight of the bonding agent in the adhesive composition. In some embodiments, the hemicellulose constitutes essentially 100% of the bonding agent. The remainder of the bonding agents, if any, in the adhesive composition may be starch-based.

Amendments to and Listing of Claims

1. (Currently amended) A method for preparing a laminate, comprising the steps of providing a first laminae and a second laminae, at least said first laminae being liquid pregnable and being impregnated with a liquid adhesive composition, ~~said adhesive composition comprising hemicellulose and water,~~ said first laminae being in contact with said second laminae along a bonding interface; and

at least substantially dewatering said adhesive to thereby form an adhesive bond between said first and second laminae at said bonding interface, said first laminae comprising a non-woven mat of fibers, said adhesive composition consisting essentially of hemicellulose and water.

2. (Canceled).

3. (Previously presented) A method according to claim 1, said fibers comprising glass fibers.

4. (Canceled).

5. (Canceled).

6. (Canceled).

7. (Previously presented) A method according to claim 1, wherein said adhesive composition comprises a liquid fraction derived from an alkaline cooked hemicellulose-containing agricultural residue.

8. (Canceled).

9. (Original) A method according to claim 1, said dewatering step including applying heat.

10. (Original) A method according to claim 1, including the steps of impregnating said first laminae with said adhesive, and subsequently placing said first laminae into contact with said second laminae.

11. (Original) A method according to claim 10, further including the step of impregnating said second laminae with said adhesive.

12. (Original) A method according to claim 11, wherein said second laminae is impregnated prior to placing said second laminae into contact with said first laminae.

58. (New) A method according to claim 54, including the steps of impregnating said first laminae with said adhesive, and subsequently placing said first laminae into contact with said second laminae.

59. (New) A method according to claim 54, said hemicellulose being present in an amount of at least 50% by dry weight of the bonding agent in the adhesive.

60. (New) A method for preparing a prepreg, comprising the steps of:
providing a liquid pregnable substrate comprising a non-woven mat of fibers; and
impregnating said substrate with an adhesive composition, said adhesive composition comprising corn hull hemicellulose and water, said hemicellulose being present in an amount of at least 45% by dry weight of said adhesive composition.

59. (New) A method according to claim 60, said hemicellulose being present in an amount of at least 50% by dry weight of the bonding agent in the adhesive.